**ICANWK-NEW1-level 5** **Configure and manage advanced enterprise virtual computing environment**

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| **Unit descriptor** | This unit describes the performance outcomes, skills and knowledge required to configure and manage advanced enterprise computing environments with the goal of providing a more efficient and reliable information and communications technology (ICT) environment.  No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority. |
| **Employability skills** | This unit contains employability skills. |
| **Application of the unit** | This unit applies to senior networking staff responsible for increasing the sustainability of an organisation by using virtualisation technologies. |
| **Unit sector** | Networking |
| ELEMENT | PERFORMANCE CRITERIA |
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |
| 1. Configure and manage core virtual Networks | * 1. Design enterprise virtual environment according to ***organizational requirements***   2. Plan and design virtual network   3. Configure ***virtual Switch(Vswitch)*** ports, Security policies, traffic-shaping, and NIC teaming,   4. Configure VLAN networks, VLAN security and VLAN   5. Manage Vswitch connection to physical adapter   6. Manage Vswitch storage adapter   7. Configure and Manage ***multiple networks***   8. Manage Distributed Vswitches |
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| 1. Configure and manage core infrastructure storage and services   3 Secure virtual environment | * 1. Obtain technical storage specifications and system requirements from virtualisation-software vendors   2. Plan and design core infrastructure storage environment   3. Create and configure ***Virtual storage connection***   4. Manage and Secure virtual storage connection   5. Create and Manage LUN “logical unit number”   6. Install and manage local and ***shared Datastore***   7. Manage Datastore clusters and resource pools   8. Configure and manage Provisioning Services   9. Configure and manage templates   3.1 Plan and design *administrative strategies*  3.2 Configure user roles to administer virtual environment  3.3 Setup users Privileges and Permissions according to organisational environment |
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| REQUIRED SKILLS AND KNOWLEDGE | |
| This section describes the skills and knowledge required for this unit. | |
| Required skills | |
| * communication skills to: * convey and clarify information   liaise with clients   * initiative and enterprise skills to proactively minimise, control or eliminate hazards that may exist during work activities * literacy skills to: * develop and document virtualisation configurations and processes   record researched information   * planning skills to plan methods for integrating and maintaining a virtualised machine environment * problem-solving skills to: * apply solutions in networks, including virtualised machine environments   deploy rapid deployment of solutions to problems involving virtualised machine environment   * technical skills to apply current best practice to implementing sustainability options through virtualisation methodologies and technologies | |
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| Required knowledge | |
| * overview knowledge of: * current government and industry policies and guidelines related to developing efficient and reliable ICT environments * current technologies and processes designed to produce a efficient and reliable ICT environment * available tools and software applications required to manage virtual machines * configuration of software applications required to manage virtual machines * configuration required to integrate virtual machines into existing network design * structure, function and business organisation of client | |
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| RANGE STATEMENT | |
| The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.  ***Virtual switch “Vswitch”:***  ***May include*** | |
|  | * Standard Vswitch * Distributed Vswitch * Hyper-V Virtual Switch * Open VSwitch |
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| Organisational requirements may include: | * preventative maintenance and diagnostic policy * problem solution processes * roles and technical responsibilities in network management * vendor and product service level support agreements * work environment. |
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| ***Virtual storage connection:***  may include   |  |  | | --- | --- | | Virtualisation software vendors may include: |  |   ***Multiple networks*** may include:      S***hared*** ***Datastore*** may include:  ***Administrative strategies*** may include | • Network File System (NFS)  • Internet Small Computer System Interface (Iscsi)  • Fibre channel  • Fibre Channel over Ethernet (FCoE)   * Citrix * KVM * Microsoft * Oracle * Parallels * VMware * production network * storage network * management network * Vmotion network * Internal network * external network * private network * V-Lan Networks * ISCS * Storage Area Network (SAN) * Network File System (NFS) * Setting up user roles, permissions and security access * Automation of frequently repeated processes * Managing multiple automated processes * Centralising automated scripts |
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| EVIDENCE GUIDE | |
| The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package. | |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | Evidence of the ability to:   * Plan and design a virtual network utilising the more advanced technologies available * Configure the virtual networks security and storage requirements * Manager and administer the virtual network at an advanced level |
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| Context of and specific resources for assessment | Assessment must ensure access to:   * site or prototype where virtual machine environments may be implemented * network technical requirements * software   appropriate learning and assessment support when required.  Where applicable, physical resources should include equipment modified for people with special needs. |
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| Method of assessment | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:   * verbal or written questioning to assess candidate’s knowledge of:   + planning and designing virtual networks   + benefits of virtualisation   + configuration of virtualisation software and virtual machines   + configuration of virtual machines into network design   + configuration and management of storage infrastructure   + securing virtual environments * direct observation of candidate demonstrating:   + configuration of virtualisation software and virtual machines   + configuration of virtual machines into network design   + configuration of virtual storage connections   + management of shared datastore clusters |
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| Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.  Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.  Indigenous people and other people from a non-English speaking background may need additional support.  In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge. |